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How Macroeconomic Policies Affect Project Performance in the Social Sectors

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A country's economic policies significantly affect the performance of investment projects in the social sectors, especially education.

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This paper — a product of the Country Operations Division III, Country Department III, Europe and Central Asia region — was initiated during preparations for the *World Development Report 1991* on development. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Dani Kaufmann, room H2-041, extension 37305 (July 1992, 40 pages).

Kaufmann and Wang find that a country's economic policies significantly affect the performance of investment projects in the social sectors, especially education. Their findings underscore the need to link strategy in the social sectors — even at the project level — to a country's structural adjustment and broad economic policies.

It is important, they say, to fully integrate existing and expected economic policy into project preparation and project appraisal documents in the social sector.

The paucity of robust quantitative information on the costs and benefits of social projects may have perpetuated the false notion that social projects, unlike other types of projects, may be insulated from the effects of general economic policy.

Kaufmann and Wang present an analytical framework to suggest the mechanisms through which such policies affect each stage of a project cycle. They use statistical analysis and case studies from a broad range of sector reports and project documents.

Bivariate statistical analysis of the incidence of *unsatisfactory* projects shows that social projects are two to three times as likely to be rated unsatisfactory where there is restrictive trade, overvalued currency, a fiscal deficit, and relative price distortions. The evidence is even stronger when data only for education projects are examined.

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This work was initiated during preparations of the World Development Report 1991, and has benefitted from discussions and inputs from other members of the WDR team and from OED and operational Bank staff involved in the social sectors.

I. Introduction

The importance of project- and sector-level determinants of project performance in the social sectors has been widely recognized and studied. By contrast, the linkages between economy-wide policies, on the one hand, and project-level success in social investments, on the other, has been neither universally accepted nor studied in depth. Partly, this is due to the lack of robust empirical measures of project performance in the social sectors (such as Economic Rates of Return (ERR)) and partly due to insufficient data on economy-wide policy variables. In addition, the conventional wisdom has been that, in contrast to the impact of macroeconomic policies on the tradeable sectors (agriculture and industry), in the social sectors (as well as in infrastructure), the effects of a distorted or unstable macro-policy environment are weaker. For infrastructure, this view has been challenged through the analysis of projects' ERR's which indicated that economy-wide policies do matter significantly, as they do in the tradeable sectors (Kaufmann 1991). Although the Bank's social sector lending experience in many developing countries does suggest that economy-wide policies do matter, the issue of macro-micro linkages in these sectors has not been fully addressed in the literature in general, or within the Bank in particular. More specifically, the mechanisms through which macroeconomic policies affect project performance at the various stages of the project cycle have not been rigorously explored either.

The main objective of this study is to explore the relationship between a country's overall economic policy environment and the performance of investment projects in the social sectors. We focus on the impact of economy-wide policies including a range of fiscal, monetary, exchange rate, trade, and pricing indicators. Particular emphasis is put on the analysis of projects in education, which comprise the

large majority of the Bank's social projects.

The methodology combines statistical analysis and case studies, with the latter based on a broad range of sectoral reports, Project Completion Reports (PCRs), Project Performance Audit Reports (PPARs), and sustainability analysis conducted by the Operation Evaluation Department (OED) of the World Bank. The statistical analysis draws on the OED project data as well as the country-level policy performance variables of the WDR'91 data set. Since the attempt at rigorously linking macro-determinants with project outcomes in the social sectors is a new area of research, our paper should be seen as an initial effort in this area. We expect to elicit comments and reactions leading to further research.

The next section briefly reviews the literature. To supplement the limited literature, Section III examines some country- and project case studies which begin to suggest the relationship between economy-wide policies and project performance. Section IV presents a simple analytical framework of the possible linkages between the economic policy environment and project performance. Section V discusses the data and empirical method. Section VI presents the results from statistical analysis. Concluding remarks and implications are provided in the final section.

II. Brief Review of the Literature

Literature on the impact of economy-wide policies on project performance in the social sectors is quite limited. Very few cross country studies exist, although some sectoral reports and PCRs and PPARs have touched upon this issue.[1] The relevant studies we found include one sustainability study conducted by OED, a series papers on the implementation of educational policies, and a few World Bank Policy Studies. We will review this literature briefly in this section.

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[1] This part is based on a survey of literature covering the summaries of 158 PPARs and/or PCRs, about 20 sectoral reports and about 20 Working papers, discussion papers, and policy studies.

The OED report (World Bank, 1990) is a sustainability analysis of investment projects in Education. It examined a number of education projects to see whether the initial investment has continued to produce benefits well beyond project completion (about 10 years after completion), and investigated the factors affecting sustainability. Sustainability was defined as the continuation of desired benefits from a given investment, and was measured by several sustainability indicators. The Report argues that the following principal factors constituted the necessary conditions for sustainability: sound project design and relatively problem-free implementation; adequate funding for recurrent costs, and institutional support in the post-completion period; and clear policy support for the project from the borrower. However, it is stated that none of the above factors alone is sufficient for sustainability. Further, the report found:

> "the external economic and policy environment affects sustainability through the fiscal resources the borrower makes (or does not make) available to support educational development, or through policy measures to back up specific sub-sectors. External factors also affect sustainability indirectly through macroeconomic effects on labor markets, which determine the capacity of the economy to absorb graduates." (p.viii)

However, due to an insufficient number of observations (twelve observations),[2] the conclusions from the statistical analysis carried out are not quite robust (p.36). Moreover, there are measurement problems with the variables. The study evaluated each variable (both dependent and independent) for a given project in terms of a four-point scoring system. Each aspect of performance or policy[3] was judged to be good, fair, poor, or zero, with corresponding numerical values of 3, 2, 1, or 0. These scores are a mixture of quantitative and qualitative variable, and it is difficult to maintain consistency across projects such that a given score for a variable in one project represents the same thing in another. Furthermore, the

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[2] These include five case studies in Indonesia, Malawi and Columbia (3 projects), and eight projects from Jordan, Kenya, Liberia, Malaysia, the Philippines, Sierra Leone and Thailand. Columbia I and II are considered one observation. All of them were completed during 1969-79, and were re-evaluated during 1988-89.

[3] The policy variables include, overall level of government support, macroeconomic conditions, education sector conditions, and level of policy commitment, all measured by the four-point score system.

project benefits in terms of productivity-wage enhancement due to human capital investment is not captured by anv of these measures.

A series of papers were published recently on the implementations of educational policies in Africa.[4] These papers generally focus only on sectoral policies. Only a few touched upon the relationship between macro- policies and the implementation of educational policies. For example, Achola (1990) found that in Zambia the problems with implementation of educational policies were associated with a declining economy since the mid-1970s, resulting from falling copper prices, high oil bill and a drain on foreign exchange, poor pricing policy in agriculture, and poor harvests. A rapidly growing population (3.7 percent annually in 1980-89) resulted in greater demand for more new primary schools and/or school places, difficulties in educational financing and low quality of education. Economic decline caused unemployment among school-leavers and high dropout rates at the end of primary education. The estimates ranged from 1 to 1.5 million unemployed youth, most of them young school leavers. Kelly (1991) also examined the impact of Zambia's declining economy on the provision of formal education from 1975 to 1985. The paper showed that the consequences included a substantial reduction in expenditure per student, a depreciation of the real income of teachers to about 40 percent of their 1975 value, and a greater reliance on the community, the private sector, and foreign aid for support to the education sector.

Bank policy studies have examined the relationship of education and the overall economic environment. The adverse effects on education of a rapidly growing population, a stagnant economy,

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[4] These studies evaluate the comprehensive experience of eight Anglophone Eastern and Southern African countries, each of which had developed and issued major education policy reforms or pronouncements. After reviewing 153 cases of educational policies, Craig found that only a handful (12 cases, 8 percent of total) were "mostly or fully implemented". Why educational policies can fail? Psacharopoulos concludes that it is mainly because of insufficient, or the absence of implementation, which can be attributed to vaguely stated policies, unspecified financing scheme, and unclear theoretical relationship between instruments and outcomes. The results indicate an urgent need for the formulation of more concrete, feasible and implementable policies based on documented cause-effect relationships. See Psacharopoulos (1990), Craig (1990), Kiros (1990), Eshiwani (1990), Galabawa (1990), Thelejani (1990), Magalula (1990), Odaet (1990), Achola (1990) and Maravanyika (1990).

massive fiscal deficit and the reduction of public spending, were fully recognized, and the need for adjustment and structural reform was called for (e.g. Tan and Mingat 1989, World Bank 1988). However, these studies did not address the problems in project performance. Numerous other studies investigate the contribution of better education and health to economic growth (e.g. Haddad, Carnoy, Rinaldi and Regel 1990) or policies to reform the education sector and improve the quality of education (health) services (e.g. Rondinelli, Middleton and Verspoor 1988, Verspoor 1989). These studies examine the micro to macro relationship, whereas the macro to micro linkage is beyond the scope of these studies.

A large literature can be found on the allocative efficiency within social sectors, the problems of mistargeting, and the equity and efficiency issues in delivering social services (e.g. James 1989, World Bank 1988a, Psacharopoulos, Tan and Jimenez 1986, Tan and Mingat 1989, and Winkler 1988). While these papers do not address the issue of economy-wide policies directly, they suggest that the allocation of social spending do have important effects on the performance of investment projects. For example, Birdsall and James (1990) indicate that,

> "the average rate of return [to education projects] in developing countries has been estimated 24% at the primary level, 15% at the secondary and 13% at the higher education level. Even if these rates of return are upwardly biased, the ranking of actual returns across levels of education is probably correctly captured. Yet, many countries spend a disproportionate share of their total educational budgets at the tertiary level. (p.10)"

Similar mistargeting problems are found in the health sector. The study calls for a reallocation of public spending for programs that would improve efficiency and equity, such as immunization programs, rural health clinics, and primary schools. Their study suggests that the allocation of social spending within education and other social sectors affects the rates of returns of investment and also the performance of projects.

III. Case Studies

III.A Country case-studies

In this sub-section, we briefly review some country cases, both successes and failures, based on the Bank's country studies or sector reports.

A. Thailand's education sector: a successful story

The implementation of education policy in Thailand has been quite successful. Public expenditure on education in Thailand rose to about 20 percent of the national budget during 1976-1984. Thailand has now achieved universal primary education, and the adult literacy rate rose from 68 percent in 1961 to 91 percent in 1985 with an average enrollment ratio of about 20 percent at the tertiary level.

One of the central reasons attributed to the success in education development is Thailand's overall macroeconomic environment during the past few decades. The Thai economy has been growing steadily at an annual rate of 7.3 in 1965-80 and 7.0 in 1980-89. Along with the industrialization and employment shifting away from agriculture, there is a surge in demand for better educated labor, which is reflected by job vacancy trends and employers' report of difficulty in recruiting and keeping such workers. The unemployment rates have been very low (1.3 percent in 1987 and 0.8 percent for 1988). This surge in demand for educated labor has created great private and public incentives to invest in education and better utilization of existing facilities.

The second reason is the lower rate of population growth in the last 20 years, resulting from a general income growth and a highly successful family planning program. The total fertility rate[5] declined dramatically from 6.31 in 1960s to 2.48 in 1989. The dependency ratio has been declining steadily since 1970. This reduced the relative size of the school-age population, and correspondingly lightened the

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[5] Total fertility rate is the average number of children that would be born alive to a woman during her lifetime, if she were to bear children at each age in accordance with the prevailing age-specific fertility rates.

working adults' fiscal burden for public spending on education. (Sources: Sussangkarn 1990, World Bank 1991, 1989)

Although problems still exist, such as a low secondary enrollment ratio, large regional disparities, and high unit costs in primary education, etc., Thailand's educational reforms have been designed to tackle the problems. And the policies have remained flexible and responsive, with a willingness to adopt new approaches if the old ones fail to meet objectives. In sum, a steady economic growth and subsequent demand for educated labor, lower population growth, and flexible and responsive sectoral policies provided a favorable environment for Thailand's success in educational development.

B. Brazil: Mis-targeting and inefficiency

Brazil spends a significant share of its GDP on social services, a total of 18 percent of GDP in 1986 (federal 9 percent; state 9 percent). In 1985, about 1.4 percent of GDP was spent (by central government alone) on education and 1.8 percent on health. However, social welfare indicators are strikingly low: infant mortality in Brazil (59 per thousand in 1989) is well above the average for countries in its income group (45.2), and in the Northeast of Brazil (116 per thousand in 1985), it is higher than in much of Sub-Saharan Africa. Secondary enrollment was only 21 percent in 1984, compared with 90 percent in Korea. Large regional disparities exist in literacy rates, school enrollment, other social indicators, and in per capita income.

Why Brazilian federal expenditure has not achieved more? First, inflation and poor expenditure policies have resulted in stop-and-go financing and inefficient inter-governmental transfers. Transfers are often made with an uncertain time and in an inflationary economy, the real value of the resource can be quickly eroded, forcing agencies into inefficient budget adjustment, "start and stop" construction programs, disrupted procurement and delayed maintenance. Second, excessive transaction costs and wastes were caused by institutional arrangement that led to overly centralized federal programs, and lack of incentives for cost-effectiveness due to the lack of transparency and accountability in the financing of social programs.

Third, price distortions caused by government control of private school tuition, have limited the expansion of private education, prevented the appropriate use of the private sector and reduced competition and overall efficiency. Fourth, poor expenditure policy led to mistargeting within and across sectors. Relatively high public subsidies are provided for the types of programs that are not likely to reach the poor and the vulnerable. For example, 78 percent of the health spending is spent on curative hospital care in 1986, only 22 percent for primary care. In education, an estimated 23 percent of total government education spending (federal, state, and minicipio) goes to universities, and only 9 percent to secondary education, compared with 11 percent and 37 percent respectively, in Korea.

III.B Project case-studies

This sub-section reviews several project cases based on the Bank's Project Performance Audit Reports (PPARs) and Project Completion Reports (PCRs). These reports do not systematically address overall economy-wide policies or pricing policies for the sector. Often the macro and sectoral policy information is not included. Therefore, the linkage between policies and performance is not always clear from this documentation.

A. Zaire: Education I, 1971-81

The project was designed to help finance construction, equipment and rehabilitation of existing/new facilities for the training of secondary teachers and teacher trainers. The IDA loan of US$6.5 million was to cover about 55 percent of the cost. However, the project did not receive local currency funds on a regular basis which caused delays. Serious inflation, and a rapid devaluation of the Zaire resulted in high cost overruns and slowed down implementation. By 1982, only a fraction of the physical components were completed and the rest of the loan was canceled. Civil wars also adversely affected the implementation, especially in the Shaba region. Other factors include, lack of support from Department of National Education, incomplete architectural plans aggregated by poor management and supervision. In

sum, although the services of the project were very much demanded and the enrollment objectives have been exceeded at three institutions, fiscal problems led to lack of counter-part funding, serious inflation and wars prevented the project to attain full completion.

B. Bangladesh/Pakistan: Education project 1964-76

This project was to increase the national capacity for the education and training of professional agriculturalists, industrial technicians and technical teachers. Total project costs were estimated at US$9 million and the US$4.5 million IDA credit was to be applied to the equipment and personnel costs. Due to political and macroeconomic instability, the completion of building construction and equipment procurement took twice the time originally anticipated. The construction and equipment costs increased 20-50 percent, however, the extent of cost overrun was not ascertainable.

The project facility was seriously under-utilized. Due to the slow development of teaching, research and extension programs, student enrollment at the agricultural university did not expand. The number of graduates in technical institutes was only half that projected, and demand for them was lower than supply. The equipment financed was to some large extent idle and poorly maintained. Overall, the general unusual financial, political, and institutional difficulties prevailed in this period, and the slow economic and agricultural growth have been the main reasons for the project's failure.

C. Tanzania: Fifth education project, 1975-1982

The US$11.0 million IDA credit was to expedite rural development by training and housing to Village Management Technicians (VMTs); assist in diversification of the secondary school curricula; upgrading the training of accounting and auditing personnel, etc. The project was completed on time but its objectives were only partially met. Only thirteen out of fifteen schools were completed, and 420 houses for the VMTs were built compared to 1,500 projected at appraisal. The major factors include a) lack of counterpart funds due to fiscal problems; b) nonavailability of building materials, construction equipment, and transportation facilities which related to national physical infrastructure; c) low motivations towards

self-help approach (e.g. only 900 bicycles out of 2000 estimated were purchased and used); and d) inadequate supervision by regional and district authorities.

D. Philippines: Fishery training project

The Fishery Training Project in the Philippines is to establish a national fishery training system to meet the needs for research and technical manpower in fishing industry. The project consists of one university and seven Regional Institutes of Fisheries Technology and regional fishermen training centers. The loan of US$38.00 million was approved in December, 1979 and the project was closed in December 1987, two and half years later than expected, with 83 percent cost overrun in Pesos and a 23 percent underrun in US currency equivalent.

Until 1989, the project institutions remained seriously under-utilized. Undergraduate enrollment at the College of Fisheries was less than one-fifth of appraisal estimates and was declining since the mid-1980s. This is due to the sluggish growth in the fisheries sector and lack of employment opportunities. Subsequent studies determined the resource base to be smaller than expected, total production was significantly less than planned in 1987 and there was no shift toward large commercial operations. The demand for skilled commercial fishing operators did not materialize.

This can be considered a case of "cart leading the horse." Project expectations for sectoral performance were over-optimistic, especially in light of the lack of a comprehensive long-term development plan, which led to the choice of an inappropriate project. Agricultural higher education, alone, is insufficient to promote productivity growth (the growth rate of agriculture sector was 1.8 percent in 1980-88), in the absence of a strongly supportive economic and sectoral policy framework and the appropriate resource base.

IV. Towards a Framework of Analysis

The net benefits of a project can be encapsulated in the discounted stream of benefits and costs, as reflected in equation (1):

$$NPV=\sum_{i=0}^{i=n}\frac{P_iQ_i-C_i}{(1+r)^i} \qquad (1)$$

where: NPV = Net Present Value
P_i = Productivity (or Wage) gain per project 'graduate' in period i
Q_i = Number of project graduates in period i
C_i = Overall project costs (capital investment as well as recurrent) in period i
r = opportunity cost of capital or discount rate

Appropriate corrections for shadow pricing and externality estimates can, at least in theory, be performed in order to arrive at an estimate of the economic benefits of the project. While we know that a full estimation of benefits and costs in social projects is extremely difficult and is very rarely done, the simple decomposition in equation (1) will nonetheless be useful for presenting the main elements of a framework of analysis.

Economy-wide policies can be classified into four categories: i) fiscal and monetary policies, ii) exchange rate policies, iii) external trade policies, and iv) internal trade and regulatory policies (including labor regulations). These, in turn, can be hypothesized to affect the stream of project costs and benefits in a variety of ways, some very directly, some through more indirect mechanisms.

Overly expansionary fiscal and monetary policies result in high and variable rates of inflation, leading, in turn, to cost overruns, and to difficulties in project planning and budgeting. The term C_i in equation (1) is thus particularly affected. More narrowly, but possibly more important, is the fact that poor fiscal policy is also often associated with poor expenditure policy for the social sectors: fiscal instability results in stop-and-go social expenditure financing. This, in turn, increases the overall project

costs (C_i), and reduces the quality and quantity of project graduates (P_iQ_i)--since poorly (or belatedly) paid teachers and lack of teaching materials affect both the quality of the human capital acquired, as well as the overall supply and demand for educational training (and thus the "project's" capacity utilization).[6] Poor fiscal policy is also associated with poor expenditure policy in a noncausal way: often governments which have poor overall fiscal policies are not apt at appropriating social expenditures either, and are not adept at inter- and intra-sectoral prioritization.

An overvalued and/or volatile exchange rate can have a number of deleterious effects on social project performance.[7] First, it may lead to inadequate budgeting for the project, as the overvaluation may become unsustainable during project implementation, and the resulting devaluation results in large and unexpected cost overruns. Even if an overvalued exchange rate is maintained, the import trade restrictions that will follow may result in the inability (or very high cost) of procuring critical inputs for the project. Further, an overvalued exchange rate distorts relative prices in the economy, inefficiently reducing demand for tradeable goods. This, in turn, reduces the demand for training in critical sectors, such as agriculture, and other export-oriented activities in general, lowering capacity utilization for these types of projects.

External trade restrictions can lead to spotty and more costly supply of project inputs, both during and after implementation, impairing both the benefit as well as the cost stream of the project. While some of these trade restrictions may be ameliorated by the external implementing agency, in practice it is impossible to completely insulate a project from the overall trade restrictions--particularly once the project is already operating. Furthermore, external trade restrictions lower the productivity and derived demand for training for the tradeable sectors (see above).

Domestic regulatory and trade restrictions can be at least as damaging to project performance as

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[6] The same argument applies for the quality of nurses and availability of medicines in health projects.

[7] Exchange rate policies are closely linked to fiscal, monetary, and trade policies, and thus should not be regarded as leaving a fully independent impact on project performance.

external trade or exchange rate restrictions. In particular, restrictions on domestic distribution of goods, on domestic competition, and on the operation of labor markets can affect the stream of benefits and costs of the project. Regulated distribution channels results in inadequate supply of construction materials and of inputs critical for the project's operation, such as textbooks and medical supplies. Lack of domestic competition, in general, reduces demand for highly productive and skilled labor, while absence of private sector competition in the provision of education and health services in particular can impair the quality and quantity of the project's output. Finally, labor market policy, such as mandated wages and restriction on hiring and firing can have large effects on the demand for the project services, the motivations of teachers as well as, on the productivity of graduates. More directly, inadequate civil service wages (which is not just the outcome of narrowly understood labor policies, but the result of inappropriate fiscal expenditure policies) often undermine the implementation of social projects due to the low productivity of implementing ministries and agencies, and of the quality of graduates due to the lack of preparation and motivation of teachers. All economy-wide policies (macro, trade, labor, and regulatory) have a joint and significant impact on the overall rate of the GDP and productivity growth of the economy. In turn, the overall dynamism of the economy can affect the performance of social projects. The benefits would be lower where the economy is stagnant (affecting P_i as well as Q_i), while implementation difficulties through insufficient resources or scarcity of inputs will result in higher costs (C_i).

The above discussion sketched various ways in which economy-wide policies can affect the stream of project benefits and costs. These policies may have a different impact on project performance depending on the stage of the project cycle. Thus, the project cycle is divided into three stages, namely, project identification and preparation, project implementation, and the operation of the project after completion. We hypothesize on the that economic policy distortions affect projects at each stage of the project implementation. Table 1 synthesizes the framework of analysis being presented. The discussion here focuses on the linkages between economy-wide policies and project performance. The importance of

institutional project-and sectoral specific factors has been studied in more detail and is widely acknowledged. Consequently, it is not treated in detail here.

Stage I. Project identification and preparation. In this stage, typical problems could be that a "wrong" type of project/program or a "wrong" type of technology is chosen for the investment, that is, the kind of project chosen is not consistent with the country's and/or the sector's priorities. For instance, whether one should build an expensive hospital versus rural clinics which conduct primary and preventive care, universities versus primary and secondary schools; whether investment should be made in physical capital versus in recurrent expenditures (teaching materials, teachers' training and salaries) new investment versus rehabilitation/maintenance, etc. Examples can be found in Brazil, Bangladesh, and the Philippines, as illustrated in Section III.

Economy-wide policies are crucial at this stage of implementation and can affect the project choices and design in various ways. Overall economic growth and demand for high quality labor affect the public initiatives of investment in social sectors. A distorted pricing structure may affect project and technology choice. For example, free tuition for university education can create excess demand for tertiary education, and hence distort the project appraisal and choice. An overvalued exchange rate can result in an overly capital and import-intensive project.

Stage II. Project implementation. At this critical stage of the project cycle, performance can be affected dramatically by economy-, sector-, and project-level factors. Implementation problems include cost overrun, delay of completion or noncompletion, poor quality and technical standards. Macro-economic imbalances characterized by large fiscal deficits, high and variable inflation rates, stop-and-go expenditure policy and financing, and high interest rates can result in inadequate counterpart (domestic)

funding to the project, leading to serious delays and sometimes noncompletion.[8] Unexpected and/or variable inflation results in demands for unplanned for expenditures--often not met in a timely fashion or at all, leading to cost and time overruns. Exchange rate and trade restrictions prevent the flow of inputs or raise their costs. In addition, trade restriction, currency over-valuation, and lack of competition of the domestic market affect the efficiency of local construction industry, and increase the cost of implementing the project.[9]

Stage III. Operational stage of the project. At this stage of the project cycle, two performance dimensions need to be considered: the capacity utilization of the facility and the productivity of the "output" or graduates. Affecting capacity utilization, there is inadequate market demand and lack of complementary inputs. Both are affected by macro- and trade policies. The productivity per unit of "output" (i.e. the return to the improved human capital in each project graduate or patient) is influenced by the quantity and quality of project inputs. They in turn, are affected by the quality of the curriculum, financing and quality of textbooks, medicine and equipment. For these, insufficient budgetary financing and trade controls appear to be important.

Capacity utilization, as well as the productivity of graduates, is not only determined by factors affecting the supply side of human capital. The demand side is critical as well; high unemployment or underemployment rates will lower the demand for project services (particularly in vocational or secondary/tertiary education) and lower the productivity of graduates. Vigorous economic growth and

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[8] Fiscal balance and expenditure policies are widely perceived as being crucial. Communications with Bank experts indicate that there is general difficulty in dealing with institutional problems "when macro policy is in a mess". "Fiscal problems and poor expenditure policy are what matter. [Social] projects could in principle sometimes be insulated from poor interest rate policy and tariff distortion--but it seldom works that way since governments that are not attacking the macro and trade policy distortions are generally poor at expenditure policy in general (lots of money to state enterprises, etc.) and poor at building up the sound public institutions they need to manage social programs" (Birdsall).

[9] This happened in Zimbabwe, as communicated by R. Hecht.

Table 1 Factors influencing project performance in social sectors

Stages in the project cycle	Problem-symptom: Typical problems at each project stage	Determinants: Project-level determinants	Determinants: Sectoral level determinants	Determinants: Economy-wide policies determining project performance
I. Project preparation	*Inappropriate choice *Ill designed project *Wrong technology (e.g. hospital vs. preventive-care facilities)	*Poor technical assistance and project preparation and appraisal *Low quality of domestic institution	*Inappropriate sectoral policy/planning *Inability of identifying priority within sectors *Weak sectoral ministries	Stable economic growth in turn related to appropriate economy-wide policies creates demand for high-quality labor and incentives to invest in the social sector. Fiscal deficit, inflation and interest affect availability of funding.
II. Project implementation	*Cost overrun/delays *Noncompletion *Poor quality	*Supervision *Management *Procurement *Technical assistance	*Over-centralization *No incentive for cost effectiveness *Poor management of fund within sectors	Fiscal deficit affects the availability of counterpart funding. Macro-instability associated with stop-and-go financing; inflation results in cost-overrun; restrictions on exchange rate and trade cause shortage of recurrent inputs and equipment, resulting in poor quality and delay.
III. Project operation 1. Capacity utilization	*Insufficient demand for project services	*Poor design of curriculum *Inappropriate books *Low quality and ill-motivated staff	*Poor design of curriculum *Misallocation of funding within sectors, e.g. insufficient funding for recurrent expenditures, drugs, salaries, books, etc.	Stable economic growth, which is affected by macroeconomic, trade and pricing policies, creates demand for social project services; public expenditure policy affects funding of these services; competitiveness, wage rate, and labor market policies affect the demand for the services of social projects, particularly education.
IV. Project operation 2. Productivity of graduates	*Inadequate demand for human capital *Ill-motivated and ill-equipped workers Poor match of jobs and skills	*Poor design of curriculum *Inappropriate books *Low quality and ill-motivated staff	Poor distribution of types of schools or health care facilities; nonmatch of sectoral policy and labor demand.	Vigorous economic growth is critical, which, in turn, is determined by overall economic policies. Structure of production determines demand for for workers with specific skills. Labor market mobility, wage rate policy affect employment and earnings of graduates, determining the rate of return investing in human capital; openness and competitiveness affects the overall productivity and earnings.

industrialization increase the demand, employment opportunity and potential earnings for healthy and educated workers. Economic growth is largely determined by the overall economic policies pursued by the government. Labor market policies also matter: low salaries for teachers, restrictions on labor mobility, and hiring and firing reduce the earning opportunities and incentives to invest in education, causing under-utilization of educational facilities and misallocation of labor. At a sectoral policy level, pricing policies for public health and education services can have deleterious effects on social projects and the sectors.[10]

V. Data and Measurement Issues

The data set utilized in our analysis comprises of project evaluation data for 259 Bank-financed social projects prepared by Operation Evaluation Department (OED), and aggregate data reflecting economy-wide policies compiled by WDR 1991. The project data cover 84 countries for the period of 1974-1990, with 34 countries from Africa, 12 from Asia, 17 from EMENA, and 21 from LAC). For each project, information is available on the rating given by OED regarding project performance (satisfactory or unsatisfactory rating) at the time of project evaluation--usually about 12-18 months after the physical completion of project implementation. In addition, the data set includes the amount of the loan, estimated cost and actual cost, and dates of completion. Further, for projects evaluated in 1989 and 1990, the likelihood of longer term project sustainability is also available, although the number of observations is small (N=56). Economy-wide policy indicators include, currency over-evaluation (measured by black market premium, a variable reflecting the deviation between official and black market exchange rates);

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[10] In our communications with Bank experts one telling remark: "when user charges in health are 'too low', for example, not only is financial sustainability of the sector weakened, but a disproportionate share of project benefits may be captured by those not in the target group; unnecessary consumption may take place because there is little or no price deterrent; and an ethos of cost-consciousness and cost-containment is unlikely to emerge among managers in health institutions." (R. Hecht)

Thomas-Halevi index on trade restrictions; real interest rates; fiscal deficit as a share of GDP; and an index on price distortion of tradable goods by David Dollar; and a modified version of Dollar's price distortion index.[11] Among them, indices on trade restrictiveness and real interest rates are available only for around thirty countries.

There are some measurement problems with the OED rating of social projects. Since the evaluation is conducted soon after the project completion, the full stream of benefits and the longer-term effects (or the sustainability) of the project are not taken into account. Further, the criteria for rating across different social sectors (and even within a sector) may not be always the same, since some subjective judgements are required given the lack of detailed numerical estimates on costs and benefits. More generally, the measurement errors in the OED rating seem to be biased upwards, meaning that the unsatisfactory ratings are for those projects which truly performed very badly, whereas the satisfactory ratings include mediocre projects and ventures of uncertain performance quality.

The implications of measurement error in the dependent variable, however, are not as serious as errors in the independent variable: under reasonable assumptions, the estimated coefficients are still statistically consistent.[12] To deal with this "errors in variable" problem, we concentrate our analysis on the likelihood of unsatisfactory project performance, treating the other category (conventionally labeled as "satisfactory") as "all others" instead, i.e., it is supposed to comprise satisfactory as well as mediocre or marginal projects. Since the dependent variable represents the incidence of failed projects, the estimated coefficients should be interpreted as the effects of policies on failure rate. In addition, we will analyze the

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[11] For definitions of variables, see Appendix table 1.

[12] In an equation $y=X\beta + u$, it is usually assumed that the X have been measured without error, and the disturbance term u has been thought of as representing the influence of various explanatory variables that have not been included. It could also have a component representing measurement error in the dependent variable y. Therefore the estimates using OLS are still consistent even if there are measurement errors in y. See Johnston (1984).

information on the likelihood of sustainability as a supplement measure of OED ratings.

VI. Results of the Statistical Analysis

VI.A Unsatisfactory projects and economy policies

Through a simple bi-variate statistical analysis, the incidence of unsatisfactory projects under each policy distortion category is calculated first. Policy variables are divided into high vs. low distortion segments and the likelihood of project failure is computed for each policy distortion segment. The following policy variables are used in the analysis: high/low currency overvaluation (measured by the black market premia), positive/negative real interest rate, high/low degree of trade restrictiveness (measured by Thomas-Halevi index of tariffs and quantitative trade restrictions), high/low fiscal deficit as a share of GDP, and high/low degree of relative price distortions in tradable goods (measured by the index constructed by D. Dollar). In addition, high/low growth rate of GDP is included.

Among 259 social projects, fifty-two (20 percent of the samples) are rated as unsatisfactory. Results from cross-tabulations show that the economic regime's trade restrictiveness, currency overvaluation, fiscal deficit, price distortions, and GDP growth are significantly associated with the performance of social projects, which is similar to what was found for projects in other than social sectors (Table 2). No social project failed when trade barriers are low, as compared with a probability of failure of almost 30 percent when trade restrictions are relatively high or very high. When the black market premium is high, 37 percent of the projects failed, which is more than double the likelihood of project failure when there is low premium (17.4 percent). Similarly, when the fiscal deficit is big, the projects have a much higher probability of performing poorly. And when relative prices are distorted, the likelihood of poor project performance is higher. The overall performance of the economy, as measured by GDP growth, (which in turn is associated with the overall policy framework) matters as well:

Table 2 Summary: Impact of economy-wide policies on the performance of social and nonsocial projects

Economy-wide policy variables	Percentage of unsatisfactory projects			
	Social projects			Nonsocial projects
	All	Education	Health	
Number of projects	259	228	31	1488
Percentage unsatisfactory	20.1	17.5	38.7	21.6
Trade restrictiveness				
Low	0.0**	0.0*	INSF	16.3**
High	28.1**	23.9*	INSF	24.9**
Black market premium				
Low	17.4***	13.6***	42.3	19.5***
High	37.0***	39.0***	20.0	36.7***
Fiscal deficit				
Low	11.3**	11.1	12.5**	14.3***
High	29.2**	22.6	58.3**	25.4***
Price distortions				
Low	14.8**	11.9**	28.6*	18.1***
High	25.7**	22.9**	62.5*	25.3***
Real interest rate				
Positive	17.5	13.7	33.3	16.4
Negative	29.4	23.3	75.0	17.4
Growth of GDP				
High	14.4*	11.4*	33.3	16.9***
Low	23.8*	21.3*	60.0	28.3***

Note: This is a summary table based on information given in Tables 4-5. For definitions of variables, and benchmark for each variable see Tables 4-5 and Appendix Table A-1. INSF stands for insufficient number of observations.
Significance levels based on Chi-squares for each crosstab:
*** Represents significant at the 99 percent confidence level.
** Represents significant at the 95 percent confidence level.
* Represents significant at 90 the percent confidence level.
No asterisk: Significance less than 90 percent.

for economies growing at an annual rate of 2 percent or above, the probability of failing is significantly larger than for economies with a low growth rate.

As summarized in Table 2, and shown in detail in Tables 4 to 5 at the end of the paper, the above effects are statistically significant with Chi-squares ranging from 2.9 to 8.5 (the critical value is 2.7 with 90 percent confidence), suggesting strong statistical association between policy variables and the performance of projects. The impact of the real interest rate, while in the expected direction, is not significant, however. Aside from the possibility of measurement error, it may be possible to insulate social projects from financial market policies, since counter part funding generally comes from the government budget.

Using a subsample of 228 **educational** projects, with forty of them unsatisfactory, the impacts of most policy variables become even more significant (summarized in Table 2, second column and detailed in Table 5). The failing rate nearly tripled (39 versus 13.6 percent) when the black market premium is high, as compared to low premium. As the fiscal deficit is in the medium or high range, the probability of failing is two-to-three times as high as that when the deficit is less than 4 percent of GDP. Price distortion also seem to matter: The likelihood of failing is nearly doubled in a more distorted pricing environment than in a less distorted one. The statistical significance also increase, the Chi-squares ranging up to 14.1 (Table 5).

Among health projects, the probability of failing (38.7 percent) is much higher than for education projects. Only two out of six policy variables are significantly associated with the performance of health project. This is probably due to the insufficient number of observations for some policy variables (trade restrictiveness), and perhaps more importantly, to the complexity and diversity of health, nutrition and population programs, as well as the associated difficulties in evaluating them. Nonetheless, the results still show a significant association between the country's fiscal deficit and its degree of price distortions, on the one hand, and the performance of health projects on the other.

For comparison purposes, similar crosstab analysis is conducted for nonsocial projects utilizing the OED data on the project rating (unsatisfactory versus satisfactory).[13] The relationship between policies and project performance is not very different from those for projects in the social sectors. In addition, we tested through F-test whether the bi-variate relationship between economy-wide policies and the probability for project failure was statistically different for projects in the social sectors from those for other types of projects. In fact, the null hypothesis that the impact of policies on the likelihood of project failure is the same for social and nonsocial projects could not be rejected using F test. This is particularly telling, given the recent evidence on how large the impact of policies on the economic rate of return of nonsocial (tradeable and non-tradeable) projects is.[14]

VI.B Results on longer-term project sustainability

As indicated in Section V, the project performance variable (sat/unsat) is likely to be subject to measurement error. In particular, the universe of projects rated as satisfactory is likely to contain projects which are not fully satisfactory. Furthermore, the sat/unsat rating does not fully incorporate an assessment of project benefits. While the qualitative nature of the results indicating a positive correlation between the quality of economy-wide policies and project performance is unlikely to be affected, it is warranted to explore an alternative data set. In this subsection, we use the limited information on sustainability of social projects, which is available for only 56 projects evaluated in 1989 and 1990. For these years, only the black market premia variable has a sufficient number of observations for matching the policy index with the project performance variable. A bivariate crosstabulation analysis is thus performed between the black

[13] The cross-tabs for health sector and for nonsocial projects are available from the authors upon request.

[14] Projects outside the social sectors implemented in an undistorted macroeconomic and total regime are found to have economic rates of return which are almost twice (or 7-10 percentage points) as high as projects implemented under a distorted policy environment (Kaufmann 1991).

market premia and the sustainability variable.

Project sustainability concerns the beneficial effects of a social project in the longer term. It is rated as "likely", "marginal", "uncertain" and "unlikely" in the OED data set. On this basis, we divided the fifty-six projects into three categories: i) likely to be sustainable; ii) marginal or uncertain in sustainability; and iii) unlikely to be sustainable.

Table 3 presents the crosstabulations of project sustainability (measured by the three categories) by several policy indicators. Among all evaluated projects, 59 percent is sustainable, 29 percent mediocre, and 12 percent a complete failure. Currency overvaluation, no matter how measured (and what benchmark is used), show a significant negative impact on sustainability. The higher the black market premium in the country, the lower the likelihood for the project to be sustainable. For comparison purposes, we also present the sustainability for nonsocial projects. Among 267 nonsocial projects, 51 percent was evaluated as "likely to be sustainable", a slightly lower than that for social projects (59 percent). Similar association between sustainability and policies are found: A project is more likely to have sustainable positive effects when the foreign exchange premium and price distortions were low, when the fiscal deficit was small, and when the GDP growth rate was high.

Table 3 Project sustainability for social and nonsocial projects--statistical results from crosstabulations

Policy distortion	Longer-term sustainability: Likely to be sustainable Number	Likely to be sustainable Row (percent)	Marginal or uncertain sustainability Number	Marginal or uncertain sustainability Row (percent)	Unlikely to be sustainable Number	Unlikely to be sustainable Row (percent)	Chi-square X^2	Chi-square Prob>X^2
Social projects with data on sustainability (N=56)	33	58.9%	16	28.6%	7	12.5%	---	---
Black market premium								
Low (Blk<=50)	29	74.4%	8	20.5%	2	5.1%		
High (Blk>50)	3	21.4%	7	50.0%	4	28.6%		
Chi-square							12.9	0.00
Low (Blk<=75)	29	69.1%	8	19.1%	5	11.9%		
High (Blk>75)	3	27.3%	7	63.6%	1	9.09%		
Chi-square							8.7	0.01
Nonsocial projects with data on sustainability (N=267)	138	51.7%	81	30.3%	48	17.9%	---	---
Black market premium								
Low (Blk<=50)	120	55.1%	64	29.4%	34	15.6%		
High (Blk>50)	15	37.5%	14	35.0%	11	27.5%		
Chi-square							5.09	0.08
Low (Blk<=75)	121	53.8%	67	29.8%	37	16.4%		
High (Blk>75)	14	42.4%	11	33.3%	8	24.2%		
Chi-square							1.83	0.4
Price distortion								
Low (Dollar>=100)	88	57.1%	45	29.2%	21	13.6%		
High (Dollar<100)	37	42.5%	28	32.2%	22	25.3%		
Chi-square							6.68	0.04
Fiscal deficit								
Low (Mbalan>=-4)	13	65.0%	4	20.0%	3	15%		
High (Mbalan<-4)	21	45.6%	14	30.4%	11	23.9%		
Chi-square							2.09	0.35
GDP growth								
High (MGDPZ>=2)	51	54.8%	29	31.2%	13	14.0%		
Low (MGDPZ<2)	6	27.3%	11	50.0%	5	22.7%		
Chi-square							5.41	0.07

Notes: Numbers for each crosstab do not add up to the total due to missing values for policy variables. Chi-squares and Probability>Chi-squares for each crosstab are presented. These statistics test the null hypothesis of no association between the row variable and the column variable. With degree of freedom of 1 (for dummy variable of 0 and 1); the critical value for Chi-square is 2.7 for 90 percent confidence level.

VI.C Probit analysis

To further explore the correlation between economy-wide policies and project performance in social sectors, a probit analysis was conducted. A full model for the determinants of project performance should have economy-wide, sector-level, as well as project-level factors. Data availability is a constraint, however. Furthermore, our objective at this stage is not to establish and test a complete and general deterministic model, but to initiate the investigation of the relationship between economy-wide policies and project performance. Therefore, a simple empirical model is presented. It is hypothesized that the probability of having an unsatisfactory project is affected by individual or multiple indices reflecting different dimensions of economy-wide policies (Pi), and GDP growth (MGDPZ) and regional dummies[15].

Model 1:

$$Prob(UNSAT)=\alpha_0+\alpha_1 P_1+\alpha_2 P_2+\alpha_3 Africa+\alpha_4 EMENA+\alpha_5 LAC$$

Model 2:

$$Prob(UNSAT)=\beta_0+\beta_1 P_1+\beta_2 P_2+\beta_3 MGDPZ+\beta_4 Africa+\beta_5 EMENA+\beta_6 LAC$$

Table 6-9 present the results from Probit analysis for single and multiple policy models using all social and education projects, respectively. Table 6-7 use all 259 social projects and Table 8-9 use 228 education projects only. The results suggest that currency overvaluation, fiscal balance, price distortion and GDP growth are statistically important factors influencing the performance of social projects. In Table 6, black market premium, no matter how it is measured (by three-year moving averages or by natural logarithm), has a significant positive effect on the probability of the project failure. A variable measuring price distortion in tradables (AHDOLLAR) is also significant across models and samples. Fiscal deficits,

[15] For definitions of variables, please see Appendix table 1. Asia is the left-out regional dummy.

at low-to-medium range, also positively affect the probability of project failure (while it has no significant impact once the deficit exceeds about 4 percent of GDP). This "kinked" effect of fiscal balance is detected by the inclusion of two spline variables (BALANK1 and BALANK2). BALANK1 is statistically significant in 3 out of 4 equations in Table 6 and 8, suggesting the possibility of a nonlinear or "kinked" relationship between fiscal deficit and project performance. Model 2 controls for the (three-year moving average of) annual GDP growth rate, which has negative and significant coefficients--suggesting that the higher the growth rate, the lower the probability of project failure. Our intention is to show that the effects of economy-wide policies do not go away even when the overall economic dynamism is controlled for, but not to suggest any "causal" relationship. When multi-policy models are estimated (Table 7), the significant effects of currency overevaluation do not disappear, while the fiscal balance variables become insignificant.

Analyzing the subsample of 228 educational projects (Table 8-9), the results are consistent, except that the effects of black market premium and fiscal balance become more significant. The slope coefficients are quite similar with those estimated for all social projects, except for those which are not significant. In Table 9 when multi-policy models are used on education projects, the effects of both black market premium and fiscal balance are more significant than those for all social projects. Although the trade restrictiveness variable (Thomas-Halevi index) was strongly associated with the probability of project failure in the bivariate cross-tabulation analysis, their effects are not statistically significant here. In part the explanation lies in the fact that in crosstabulations we are analyzing the total effects, whereas in the multivariate analysis we are looking at partial effect, holding everything else constant (some effects are captured by the constant term, or the GDP growth). Furthermore, the number of observations for this policy variable is small and there is relatively little variation in it.

Since Probit analysis requires the assumption of normal distribution of the error term, we also performed a Logit regression analysis to test the sensitivity of the results to different assumptions regarding the distribution of the error term (logistic in this case). Results show that the signs of the estimated coefficients are consistent and the magnitude of the coefficients vary little for those variables which are

statistically significant. The overall results suggest that the estimates are relatively insensitive to changes in the estimation methods, to various measures of policy variables, and to different samples used.

VII. Summary and Conclusions

This paper provided an initial investigation of the impact of economy-wide policies on the performance of projects in the social sectors. After briefly reviewing the literature and case studies, we presented an analytical framework suggesting mechanisms through which economy-wide policies affect each stage of a project cycle. Then, the statistical analysis was carried out. The bivariate statistical analysis on the incidence of **unsatisfactory** projects suggested that trade restrictiveness, currency overvaluation, fiscal deficit, and relative price distortions are significantly correlated with project performance in the social sectors. Shortly after completion of project implementation, social projects are twice-to-three times more likely to be rated as **unsatisfactory** in settings where trade barriers and price distortions are high, where the fiscal deficit is not small, or where the currency is overvalued. These effects are even more significant when the subsample of education projects, comprising the large majority of Bank projects in the social sectors, is analyzed independently. And when the data on longer term **project sustainability** is also incorporated into the analysis, the relationship between policy distortions and **project sustainability** appears to hold strongly as well.

A multivariate Probit analysis was then carried out to further explore the determinants of the probability of project failure. Using all 259 observations, black market premium and fiscal deficit showed positive and significant effects on the probability of project failure. The degree of price distortions also showed positive and significant impact, while a negative association was found between the probability of project failure and the overall dynamism of the economy--measured by GDP growth, which is expected. Analyzing education projects alone, the statistical evidence is even stronger. The degree of trade restrictiveness performs in the expected direction, but was not statistically significant in the multivariate

analysis. The results from a multivariate Logit analysis were similar to the Probit estimations, suggesting that the results are not sensitive to the assumptions on the distribution of the error term.

We also tested whether the bivariate relationship between policies and the probability of project failure was statistically different for social and nonsocial projects--given the recent evidence on how large the impact of policies on the economic rate of return of nonsocial projects is. Using F test, the null hypothesis that the effects of policies on the likelihood of project failure was the same for social and other projects could not be rejected.

The overall evidence presented in this paper does suggest therefore that economy-wide policies matter significantly for success in the implementation of social projects. Indeed, the data does not support the notion that World Bank projects in the social sectors may be better insulated from the overall policy framework than other types of projects. And it can be further hypothesized that the overall impact of economy-wide policies on project performance may be even larger for projects implemented by other agencies, external or domestic--the reason being that the sheer 'clout' and resources of the Bank are often put to use to try and partially insulate projects from macro-distortions (with varying degrees of success, through special institutional, procurement and financial arrangements, etc.).

This paper, however, should only be regarded as an initial effort to address the complex mechanisms by which the overall economic policies of a country affect project performance in the social sectors. The multiplicity of approaches taken here, both with respect to data sources and methodologies were aimed to compensate for the pitfalls of each individual data source. The outcome of all approaches do point to the same direction, namely that economy-wide policies appear to be important in explaining the performance of social projects. But more research is required. First, further tests to ascertain the robustness of the results presented here with additional data are warranted. Second, a more in-depth exploration of the 'black box' linking economy-wide policies and project performance is needed. Whether the link between macroeconomic policies and social project failure is merely an association, or a strong causal relationship, requires further analysis. While the framework and results presented in the paper

(such as the fact that policy distortions independently affect the probability of project failure even after controlling for GDP growth) lend support to the 'causal link' hypothesis, it does not rule out the possible importance of the 'mere association' hypothesis as well.

The findings presented in the paper, if corroborated through further research, also have important policy implications, particularly regarding the design of an adequate lending strategy in countries with inappropriate macroeconomic, trade, and pricing policy regimes. The findings underscore the need of linking the strategy in the social sectors, even at the project level, to the overall structural adjustment and economy-wide policies that a country is pursuing.

The results of the analysis also point to the importance of fully integrating the existing and expected policy framework of the overall economy into the project preparation process and into the project appraisal documents. Similarly, the project evaluation documents at the time of project completion (PCRs and PPARs) need to cover the economy-wide policies, pricing (wages/service fees) policies of related sectors and their impact on projects more systematically. Finally, efforts to improve on the data collection requirements for project appraisal and evaluation in the social sectors may have significant payoffs. Improved project decision-making could result, as well as an enhanced statistical understanding of the key determinants of the productivity of social projects. The paucity of robust quantitative information on the costs and benefits of social projects may have perpetuated the false notion that, in contrast with other types of projects, social projects may be insulated from the effects of economy-wide policies.

Table 4 Incidence of unsatisfactory social projects and policies: Results from statistical crosstabulation analysis

Policies	Project performance: Unsatisfactory Number	Unsatisfactory Row %	Others Number	Others Row %	Chi-square X^2	Chi-square Prob>X^2
All sample (N=259)	52	20.1%	207	79.9%		
Grouped by:						
Trade restrictiveness						
Low (Halevi>=3)	0	0%	11	100%		
High (Halevi<3)	16	28.1%	41	71.9%		
Chi-square					4.04	0.04
Black market premium						
Low (Mblk<=75)	34	17.4%	161	82.6%		
High (Mblk>75)	17	37.0%	29	63.0%		
Chi-square					8.50	0.00
Fiscal deficit						
Low (Mbalan)>=-4)	6	11.3%	47	88.7%		
High (Mbalan<-4)	19	29.2%	46	70.8%		
Chi-square					5.61	0.02
Price distortions						
Low (Dollar>=100)	18	14.8%	104	85.2%		
High (Dollar<100)	29	25.7%	84	74.3%		
Chi-square					4.36	0.03
Low (AHDollar<0.5)	7	13.2%	46	86.8%		
High (AHDollar>=0.5)	12	28.6%	30	71.4%		
Chi-square					3.46	0.06
Real interest rate						
Positive	11	17.5%	52	82.5%		
Negative	10	29.4%	24	70.6%		
Chi-square					1.86	0.17
Growth of GDP						
High (MGDPZ>=2)	19	14.4%	113	85.6%		
Low (MGDPZ<2)	19	23.8%	61	76.2%		
Chi-square					2.96	0.08

Note: Total sample = 259. Numbers for each crosstab do not add-up to the total due to missing values for policy variables. Chi-squares and Probability>Chi-squares for each crosstab are presented. These statistics test the null hypothesis of no association between the row variable and the column variable. With degree of freedom of 1 (for dummy variable of 0 and 1); the critical value for Chi-square is 2.7 for 90 percent confidence level.

Table 5 Education: Incidence of unsatisfactory projects and policies. Results from statistical crosstabulation analysis

Policies	Project performance: Unsatisfactory Number	Unsatisfactory Row %	Others Number	Others Row %	Chi-square X^2	Chi-square Prob>X^2
Education (N=228)	40	17.5%	188	82.5%		
Grouped by:						
Trade restrictiveness						
Low (Halevi>=3)	0	0%	11	100%		
High (Halevi<3)	11	23.9%	35	76.1%		
Chi-square					3.26	0.07
Black market premium						
Low (Mblk<=75)	23	13.6%	146	86.4%		
High (Mblk>75)	16	39.0%	25	61.0%		
Chi-square					14.09	0.00
Fiscal deficit						
Low (Mbalan>=-4)	5	11.1%	40	88.9%		
High (Mbalan<-4)	12	22.6%	41	77.4%		
Chi-square					2.25	0.13
Price distortions						
Low (Dollar>=100)	12	11.9%	89	88.1%		
High (Dollar<100)	24	22.9%	81	77.1%		
Chi-square					4.30	0.04
Low (AHDollar<0.5)	4	9.30%	39	90.7%		
High (AHDollar>=0.5)	7	20.6%	27	79.4%		
Chi-square					1.98	0.16
Real interest rate						
Positive	7	13.7%	44	86.3%		
Negative	7	23.3%	23	76.7%		
Chi-square					1.22	0.27
Growth of GDP						
High (MGDPZ>=2)	13	11.4%	101	88.6%		
Low (MGDPZ<2)	16	21.3%	59	78.7%		
Chi-square					3.43	0.06

Note: Number of education projects = 228. See, also, the note of Table 4.

Table 6 Probit: Impact of policies on the performance of all social projects

Dependent Variable: Dummy for unsatisfactory projects

	Model 1		Model 2	
Variable	Coefficient	t	Coefficient	t
Currency over-valuation Specification 1				
Constant	-1.2093	-5.86	-1.0860	-4.18
M2BLACK	0.0043	3.02	0.0034	2.31
MSM2BLK	-0.6308	-1.26	-0.7680	-1.45
MGDPZ			-0.0553	-1.81
MSGDP			0.2497	1.01
Africa	0.2538	1.02	0.2559	0.95
EMENA	0.4128	1.49	0.4273	1.52
LAC	0.1482	0.54	0.0742	0.25
Log likelihood		-122.43		-119.23
Currency over-valuation Specification 2				
Constant	-1.2031	-5.77	-1.0764	-4.08
LNMBK10A	0.1155	2.60	0.0877	1.91
MSLNB10A	-0.5908	-1.17	-0.7545	-1.41
MGDPZ			-0.0567	-1.85
MSGDP			0.2793	1.10
Africa	0.1967	0.79	0.2153	0.80
EMENA	0.3945	1.43	0.4158	1.48
LAC	0.0401	0.14	-0.0082	-0.03
Log likelihood		123.56		120.06
Fiscal deficit Specification 1				
Constant	-0.9804	-3.95	-0.7188	-2.38
BALANK1	13.8350	1.64	14.5000	1.74
BALANK2	-2.3937	-0.96	-1.7313	-0.68
MSBALAN	-3.0331	-0.13	-0.3040	-1.13
MGDPZ			-8.0807	-2.61
MSGDP			0.3022	1.20
Africa	0.1299	0.52	0.1517	0.56
EMENA	0.2577	0.88	0.3514	1.18
LAC	0.1446	0.52	0.0521	0.18
Log likelihood		-126.12		-120.18

Table 6 (continued)

Variable	Model 1 Coefficient	Model 1 t	Model 2 Coefficient	Model 2 t
Fiscal deficit Specification 2				
Constant	-0.7047	-2.92	-0.5629	-2.02
DBALAN	-0.5961	-2.06	-0.4863	-1.65
MSBALAN	-0.3311	-1.61	-0.5133	-2.33
MGDPZ			-0.0729	-2.39
MSGDP			0.3293	1.32
Africa	0.1622	0.65	0.2104	0.78
EMENA	0.2807	0.99	0.3768	1.30
LAC	0.1656	0.60	0.0939	0.32
Log likelihood		-126.35		-121.03
Price distortion Specification 1				
Constant	11.1010	1.09	7.2543	0.70
DOLLAR4	-0.1205	-1.19	-0.0810	-0.78
MSDOLLAR	-12.0760	-1.20	-8.2964	-0.80
MGDPZ			-0.0685	-2.31
MSGDP			0.2205	0.92
Africa	0.0203	0.07	0.0800	0.25
EMENA	0.3522	1.28	0.4013	1.43
LAC	0.1528	0.56	0.6023	0.21
Log likelihood		-128.05		-123.49
Price distortion Specification 2				
Constant	-1.0233	-5.00	-0.7556	-3.02
AHDOLLAR	0.0194	2.07	0.0187	2.03
MSAHDOL	0.0074	0.03	-0.5200	-1.76
MGDPZ			-0.0791	-2.63
MSGDP			0.5194	1.82
Africa	0.1987	0.70	0.5484	1.63
EMENA	0.2645	0.93	0.3725	1.28
LAC	0.1642	0.60	0.1002	0.34
Log likelihood		126.53		-119.74

Note: Number of observations = 259. Asia is the left-out regional dummy.

Table 7 Probit: Multi-policy models for all social projects

Dependent variable: Dummy for unsatisfactory projects

	Model 1		Model 2	
Variable	Coefficient	t	Coefficient	t
Specification 1				
Constant	-0.7514	-1.58	-0.6339	-1.27
M2BLACK	0.0044	3.04	0.0036	2.37
MSM2BLK	-0.5636	-1.12	-0.6971	-1.29
HALEVI4	-0.1960	-0.77	-0.1725	-0.66
MSHALEVI	-0.5194	-1.20	-0.6182	-1.37
MGDPZ			-0.0533	-1.72
MSGDP			0.3781	1.45
Africa	0.2421	0.97	0.2813	1.04
EMENA	0.4207	1.50	0.4747	1.65
LAC	0.1394	0.50	0.1094	0.36
Log likelihood		-121.56		-117.73
Specification 2				
Constant	-1.1139	-4.29	-0.8747	-2.76
M2BLACK	0.0041	2.73	0.0031	2.03
MSM2BLCK	-0.5817	-1.46	-0.0067	-1.22
BALANK1	12.8630	1.53	13.5250	1.62
BALANK2	-1.1914	-0.46	-0.9132	-0.35
MSBALAN	-0.0563	-0.22	-0.2783	-1.02
MGDPZ			-0.0681	-2.11
MSGDP			0.3089	1.20
Africa	0.1738	0.67	0.2026	0.72
EMENA	0.3168	1.06	0.3895	1.28
LAC	0.1090	0.39	0.0486	0.16
Log likelihood		-120.77		-116.63
Specification 3				
Constant	-0.6382	-1.25	-0.4988	-0.92
M2BLCK	0.0041	2.73	0.0031	2.03
MSM2BLK	-0.5817	-1.46	-0.0067	-1.22
HALEVI4	-0.2304	-0.87	-0.1874	-0.69
MSHALEVI	-0.5710	-1.22	-0.5391	-1.12
BALANK1	12.9670	1.52	13.1710	1.56
BALANK2	-1.2941	-0.50	-1.0970	-0.42
MSBALAN	0.0533	0.19	-0.1541	-0.51
MGDPZ			-0.0629	-1.93
MSGDP			0.3668	1.38
Africa	0.1357	0.52	0.1920	0.68
EMENA	0.2893	0.95	0.3809	1.23
LAC	0.0761	0.27	0.0494	0.16
Log likelihood		-119.97		-115.88

Note: Number of observations = 259. Asia is the left-out regional dummy.

Table 8 Probit: Impact of policies on the performance of education projects

Dependent Variable: Dummy for unsatisfactory projects

	Model 1		Model 2	
Variable	Coefficient	t	Coefficient	t
Currency over-valuation Specification 1				
Constant	-1.4734	-5.63	-1.4614	-4.47
M2BLACK	0.0058	3.73	0.0048	2.97
MSM2BLK	-0.4759	-0.93	-0.6608	-1.19
MGDPZ			-0.0457	-1.37
MSGDP			0.3906	1.38
Africa	0.4587	1.57	0.5511	1.69
EMENA	0.3179	0.94	0.4159	1.82
LAC	0.1848	0.56	0.1890	0.53
Log likelihood		- 96.34		-93.63
Currency over-valuation Specification 2				
Constant	-1.4285	-5.51	-1.4207	-4.35
LNMBK10A	0.1430	2.98	0.1136	2.30
MSLNB10A	-0.4498	-0.87	-0.6748	-1.20
MGDPZ			-0.0495	-1.49
MSGDP			0.4399	1.57
Africa	0.3738	1.30	0.4918	1.52
EMENA	0.2821	0.84	0.3945	1.13
LAC	0.0547	0.17	0.0828	-0.23
Log likelihood		-98.81		-95.38
Fiscal deficit Specification 1				
Constant	-1.0220	-3.50	-0.8006	-2.23
BALANK1	14.9290	1.71	15.2840	1.79
BALANK2	1.3225	0.40	2.4165	0.71
MSBALAN	-0.1530	-0.57	-0.5169	-1.72
MGDPZ			-0.0816	-2.42
MSGDP			0.4639	1.64
Africa	0.3382	1.20	0.4590	1.45
EMENA	0.2824	0.84	0.4596	1.31
LAC	0.2186	0.69	0.1934	0.56
Log likelihood		-103.23		-97.26

Table 8 (continued)

Variable	Model 1 Coefficient	Model 1 t	Model 2 Coefficient	Model 2 t
Fiscal deficit Specification 2				
Constant	-0.9805	-3.38	-0.9077	-2.72
DBALAN	-0.4235	-1.30	-0.3272	-0.98
MSBALAN	-0.1848	-0.80	-0.4438	-1.73
MGDPZ			-0.0703	-2.12
MSGDP			-0.5201	-1.83
Africa	0.3508	1.25	0.4980	1.59
EMENA	0.2071	0.63	0.3813	1.10
LAC	0.2195	0.69	0.2216	0.64
Log likelihood		-103.90		-98.49
Price distortion Specification 1				
Constant	8.2170	0.75	2.0740	0.18
DOLLAR4	-0.0935	-0.86	-0.0321	-0.29
MSDOLLAR	-9.3529	-0.86	-3.4367	-0.31
MGDPZ			-0.0673	-2.07
MSGDP			0.3790	1.42
Africa	0.2407	0.72	0.4268	1.17
EMENA	0.2744	0.85	0.4094	1.21
LAC	0.1960	0.62	0.1711	0.50
Log likelihood		-104.40		-99.74
Price distortion Specification 2				
Constant	-1.2682	-4.86	-1.0625	-3.41
AHDOLLAR	0.0193	1.89	0.0184	1.85
MSAHDOL	0.1668	0.63	-0.3718	-1.12
MGDPZ			-0.0720	-2.23
MSGDP			0.5966	1.91
Africa	0.3011	0.96	0.7101	1.88
EMENA	0.1785	0.54	0.3281	0.96
LAC	0.1994	0.63	0.1899	0.55
Log likelihood		-102.91		-97.31
Trade restrictiveness				
Constant	-0.6997	-1.30	-0.6548	-1.51
HALEVI4	-0.2559	-0.91	-0.2226	-0.75
MSHALEVI	-0.4928	-1.02	-0.6164	-1.22
MGDPZ			-0.0643	-2.03
MSGDP			0.4712	1.68
Africa	0.3676	1.33	0.4667	1.52
EMENA	0.2627	0.81	0.3915	1.16
LAC	0.1939	0.61	0.1946	0.56
Log likelihood		-104.24		-99.07

Note: N=228. Asia is the left out regional dummy.

Table 9 Probit: Multi-policy model for Education Projects

Dependent Variable: Dummy for unsatisfactory projects

	Model 1		Model 2	
Variable	Coefficient	t	Coefficient	t
Specification 1				
Constant	-1.1228	-1.95	-1.0787	-1.77
M2BLACK	0.0058	3.68	0.0048	2.97
MSM2BLK	-0.4379	-0.85	-0.6088	-1.08
HALEVI4	-0.1541	-0.53	-0.1371	-0.45
MSHALEVI	-0.3691	-0.74	-0.4894	-0.94
MGDPZ			-0.0461	-1.37
MSGDP			0.4785	1.62
Africa	0.4372	1.49	0.5578	1.70
EMENA	0.2930	0.85	0.4255	1.19
LAC	0.1709	0.51	0.2182	0.60
Log likelihood		-96.40		-92.90
Specification 2				
Constant	-1.1899	-3.76	-1.0021	-2.60
M2BLACK	0.0065	3.88	0.0054	3.08
MSM2BLK	-0.4520	-0.87	-0.5527	-0.98
BALANK1	14.6490	1.68	14.8880	1.73
BALANK2	6.2521	1.52	6.3806	1.54
MSBALAN	-0.3272	-1.10	-0.5824	-1.82
MGDPZ			-0.0626	-1.76
MSGDP			0.3880	1.29
Africa	0.4559	1.50	0.5533	1.64
EMENA	0.4254	1.18	0.5548	1.49
LAC	0.1904	0.56	0.1941	0.54
Log likelihood		-94.01		-90.89
Specification 3				
Constant	-0.6570	-1.04	-0.5509	-0.82
M2BLACK	0.0067	3.85	0.0056	3.11
MSM2BLK	-0.4311	-0.83	-0.5313	-0.94
HALEVI4	-0.2523	-0.81	-0.2147	-0.66
MSHALEVI	-0.5786	-1.06	-0.5502	-0.97
BALANK1	14.6860	1.66	14.6210	1.68
BALANK2	6.9397	1.62	7.0116	1.64
MSBALAN	-0.2728	-0.87	-0.5144	-1.53
MGDPZ			-0.0600	-1.68
MSGDP			0.4174	1.37
Africa	0.4241	1.38	0.5452	1.60
EMENA	0.3917	1.07	0.5435	1.44
LAC	0.1569	0.45	0.1911	0.52
Log likelihood		-93.44		-90.36

Note: N=228. Asia is the left out regional dummy.

APPENDIX

Appendix table 1 Definitions of variables

Variable name	Definitions and sources
Halevi	Thomas-Halevi index on trade restrictiveness based on both tariffs and quantity restrictions, with 1=most restrictive and 5=most open. Source: Thomas, Halevi and Stanton, 1991.
Black or Blk	Black market premium based on the difference between official exchange rate and black market rates. Source: Pick's Currency Yearbook.
MBlk	Three-year moving average of Black.
M2Black	Three-year moving average of a truncated Black at 200 percent.
lnMblk10a	Natural logarithm of MBlk with a benchmark of 10.
Mbalan	Fiscal imbalance as a percentage of GDP (negative values indicate deficits).
Dbalan	A dummy variable for low fiscal deficit (= 1 if Mbalan >=-4; = 0 otherwise).
BalanK1	= Mbalan if Mbalan >=-4; = 0 otherwise.
BalanK2	= Mbalan if Mbalan <-4; = 0 otherwise.
Dollar	PPI based price distortion index with a bigger value indicating less distorted prices. Source: David Dollar, 1991.
AHDollar	Modified version of Dollar's relative price index. Takes the relative price of consumption goods from Summers-Heston and purges it of its nontraded component by taking the residual of a regression of the index on urbanization, land and population. A bigger value indicates a more distorted price in tradables. Source: Ann Harrison, 1991.
Real	Real interest rate computed by subtracting inflation rate from nominal interest or rate. Source: Alan Gelb, 1990.
MGDPZ	Five-year moving average of annual growth rate of GDP by country.
MS _____	Dummy variables for each policy variables (=1 when the variable is missing, =0 otherwise).
Africa	= 1 if the project is located in Africa; = 0 otherwise.
Asia	= 1 if the project is located in Asia; = 0 otherwise.
EMENA	= 1 if the project is located in Europe, Middle East, and North Africa; = 0 otherwise.
LAC	= 1 if the project is located in Latin America; = 0 otherwise.

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